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PSYCHOLOGICAL LITERATURE.

I.—NEUROLOGICAL AND COMPARATIVE.

By C. F. HODGE, Ph. D.

The Insanity of Over-exertion of the Brain. The Morrison Lectures before the Royal College of Physicians of Edinburgh, 1894. J. BATTY TUKE; pp. 66, 9 Figs.

"To approach the treatment of the insanities through the portal of psychology is hopeless; we have gained nothing by taking that road in the past, and can hope for nothing in the future." Not only has nothing been gained, but great harm has been done and the whole subject of the cause and treatment of insanity has been burdened with serious misconceptions which it must take a long time to outgrow. Although these words appear late in the book, they form the basis of the author's treatment of the subject. The only hope lies in approaching insanity from the side of anatomy and physiology. The organ concerned is primarily the brain. Chapter I is therefore devoted to a description of a cerebral convulsion, and here we find the most recent results of the Golgi-Cajal methods utilized to the fullest extent. Not only nervous structures but the membranes and the connective tissues, the blood and lymph mechanisms are clearly brought out. Every efficient physician forms mental pictures of the condition of the organ he is called upon to treat. These for the brain specialist must be as clear and as true to nature as it has long been attempted to make them in case of disease of kidney or heart—as perfect as our knowledge of brain anatomy and histology can give.

Chapter II follows logically with the recent advances in our knowledge of brain or nerve physiology. It is in this field that the author finds, "Causes of Implication of the Apparatus." Intra-cranial circulation is first discussed both as to quantity and quality of circulating blood and lymph. Here Mosso's work naturally comes into prominence in connection with the hyperæmia during mental activity, and among that of others the anæmia of sleep. These facts are coupled with the further discoveries of Mosso that brain work weakens the muscles. If blood from a fatigued animal is transfused into one that rested, the latter shows every sign of fatigue. This proves that activity must give rise to products of decomposition which affect the organism as poisons. One possible source of such products is indicated by the change in nerve cells during experimental or daily fatigue, as recently brought out by Hodge. In fact, as the title implies, the author would maintain that in general, insanity always has its beginning in "Over-exertion of the Brain" and its consequent fatigue. Eight of the author's figures are given to enforce this point most clearly; and these are all photographic reproductions made from sections of cat's spinal ganglion cells and honeybee brains, morning and night, furnished to Dr. Batty Tuke from

the neurological laboratory of Clark University. While fatigue is within physiological limits, although extreme, a comparatively rapid recovery may occur. Under this head Dr. Batty Tuke takes occasion to remark, and without doubt truly, that the fatigue in Hodge's experiments, in which the effects of five hours stimulation required twenty-four hours complete rest, had overstepped the normal. Possibly for the ganglion cells of a cat this is true. Still even more pronounced evidences of cell-fatigue can be demonstrated in birds and honeybees at night, and these probably do not exceed the normal. Recovery in these animals undoubtedly takes place much more rapidly.

The area of the cortex found to present changes similar to those pointed out in fatigued nerve cells, is generally confined to the central region, and the large pyramids are first to show a change from the normal. Connected with the hyperæmia which accompanies excessive fatigue we find over this area the pia œdematous, thickened and milky, and the Pacchionian villi often hypertrophied. Contrary to the opinion of many on the subject, Batty Tuke does not believe that any other disease, or the disease of any other organ can act directly as the cause of permanent insanity. Even their indirect influence in worry, pain, loss of sleep, etc., he would limit more strictly than is usually done, and cites in support of his view that many of the most painful and distressing diseases, calculus, fistula, rectal or uterine cancer, stricture, etc., are not specially inimical to brain health. Between extreme conditions of fatigue prostration and insanity it is often hard to distinguish, so hard, in fact, that it is frequently said to be impossible, that sanity and insanity shade into one another by imperceptible gradations. We are glad to have stated by so high an authority that "between the two" (normal and insane conditions), "there is a distinct line of demarcation. This he finds in the individual's reaction to external circumstances. As soon as external impressions begin to lose their influence in determining judgements, normal wear has been exceeded and the mechanism of sensation or association has become seriously impaired."

The most hopeful part of the book is the line of treatment laid down for cases of over-exertion-insanity. Foreign travel, change of scene, etc., so often recommended are as clearly contra-indicated as mountain-climbing would be in pneumonia. Not change of stimuli but cessation of all stimuli is demanded. Rest, rest in bed, should be insisted upon. The patient should be carefully secluded. Possibly the other members of the family may be required to leave the house. Sleep must be promoted by all natural methods, hygienic, dietary and by massage. With Dr. Cowles, the author insists that in conditions of the brain suffering from over-strain drugs are too apt to do harm and delay recovery. They should be used only as a last resort, in any case. In hypnotism, Batty Tuke has no faith. Treatment for from three to six weeks are necessary to produce convalescence and one to three months thereafter for complete recovery. It is during this period that recreation and change may prove beneficial. To make the method of treatment available for the poorer classes each city hospital should have a ward set apart for such cases. Patients should be admitted on a physician's recommendation, and a few week's care at the right time might in no small number of cases restore a man to his work and save the state the expense of years of asylum treatment. No one can have read Dr. Cowles' book on *Neurassthenia* without being impressed by the generally hopeful convergence of view that it is possible to prevent the development of insanity, if nerve-fatigue is recognized and treated before it is too late.

There is but one thing more to be desired and that is that we gain and rationally apply to the conduct of daily life a sufficient knowledge of brain physiology to guard even against an amount of over-exertion which may not be wholly recovered from by the sleep of a single night.